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TWO NEW SEA CUCUMBERS (ECHINODERMATA:
HOLOTHUROIDEA) FROM THE EASTERN
UNITED STATES

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During the examination of holothurians collected by the Northeast Center, National Marine Fisheries Service, Woods Hole, Massachusetts, two new species were found; they are described here. Both species will be discussed further in a report on distribution patterns of holothurians off the eastern United States (Wigley and Pawson, in prep.).

I am grateful to Dr. Roland L. Wigley, National Marine Fisheries Service, for giving me access to the collections in his care, and for his help in many other ways. Type-material is deposited in the National Museum of Natural History, Smithsonian Institution.

Order APODIDA

CHIRIDOTIDAE

Chiridota Eschscholtz, 1829

Chiridota wigleyi, new species

Figure 1F-H

Diagnosis: Wheel papillae very scarce, apparently restricted to dorsal interradial areas. Radial and interradial areas of body wall with numerous curved rods with bifurcated ends; rods average 63 μm in length. Tentacles with curved rods with branching ends; tentacle rods average 85 μm in length.

Material examined: Holotype (USNM E15904, 40 mm total length) DELAWARE cruise 62-7, station 24, 15 June 1962, 40°20'N, 70°15'W, 90 m, silty sand, bottom temperature 7.8° C. Paratypes 20 specimens (USNM E15905, 25-114 mm total length) same locality data as holotype.

The species was collected at 20 stations off the eastern United States, in an area bordered by latitudes 39°47'N and 40°30'N and longitudes 69°31'W and 71°46'W; bathymetric range 70–301 m; bottom temperature 6.6–11.6° C; bottom type sand to sandy silt to sand-silt-clay.

Etymology: The species is named for Dr. Roland L. Wigley, in recognition of his many contributions to our knowledge of the marine fauna of the northwestern Atlantic.

Description: Total length 25–114 mm. All specimens contracted to varying degrees, cylindrical, dark reddish-brown in alcohol. Tentacles 12 with 5–7 pairs of digits. Ossicles in body wall include wheels and curved rods. Wheels aggregated loosely into poorly defined papillae which are sparsely scattered in dorsal interradial areas. In one specimen of 100 mm total length only 4 wheel papillae present, containing 28, 40, 18 and 17 typical chirodotid wheels averaging 86 μ m in diameter. Curved rods with bifurcated ends (Fig. 1H) scattered in radial and interradial areas of body wall. Average length of rods 63 μ m (range 50–80 μ m; standard deviation 3.73). Radial longitudinal muscles contain numerous elongate miliary granules which vary greatly in length up to a maximum of approximately 100 μ m. Granules approximately cylindrical, often slightly thickened near center (Fig. 1F). Tentacle stems and digits contain rods (Fig. 1G) resembling those of body wall, but with more complex terminal branches and greater variation in size. Average length of tentacle rods 85 μ m (range 55–115 μ m; standard deviation 8.7).

Remarks: In possessing numerous rods in the body wall, this new species is immediately distinguished from other temperate North Atlantic and Arctic species *Chirodota laevis* (Fabricius), *C. pellucida* (Vahl), *C. spirourna* Heding, *C. groenlandica* Heding and *C. abyssicola* von Marenzeller, all of which lack such rods (Heding 1928, 1935). The only other known North Atlantic species, *C. rotifera* (Pourtales), has smaller rods in the body wall (length averaging 30 μ m), and also has very numerous wheel papillae scattered in all radii. *C. rotifera* is tropical, occurring in shallow water in Bermuda and the West Indies (Clark, 1933).

Order DENDROCHIROTIDA

CUCUMARIIDAE

Ocnus Forbes, 1841

Ocnus diomedea, new species

Figure 1A–E

Diagnosis: Ossicles in body wall rudimentary cups comprising a primary cross with projecting knobs and averaging 41 μ m in length, overlying knobbed plates of one type which are highly variable in shape and size; average length of plates 72 μ m. Tube feet contain elongate smooth or knobbed plates.

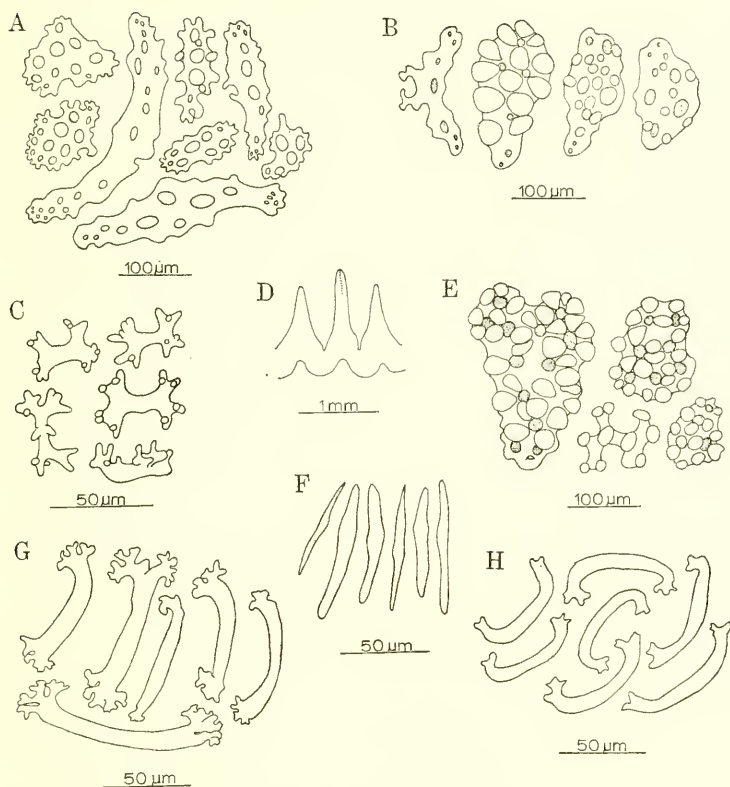


FIG. 1A-E. *Ocnus diomedea* n. sp. A, Plates from tentacles; B, Ossicles from tube feet; C, Cups from body wall; D, One radial piece and two interradials from calcareous ring; E, Plates from body wall. F-H, *Chiridota wigleyi* n. sp. F, Miliary granules from radial muscles; G, Rods from tentacles; H, Rods from body wall.

Material examined: Holotype (USNM E15906, 15 mm total length) ALBATROSS IV cruise 66-9, station 1004, 15 July 1966, 42°11'N, 65°50'W, 247 m, gravel. Paratypes: 19 specimens (USNM E15907, 8-17 mm total length) same locality data as holotype; 5 specimens (USNM E15908, 9-19 mm total length) ALBATROSS IV cruise 66-9, station 1005, 16 July 1966, 42°13'N, 65°42'W, 229 m, gravel; 12 specimens (USNM E15909, 10-17 mm total length) ALBATROSS IV cruise 68-12, station 72, 15 August 1968, 42°22'N, 65°55'W, 192 m, gravel.

Etymology: Species named for collecting vessel. *Diomedea* is generic name for the albatross.

Description: Body 2–3 times as long as broad, mouth and anus terminal. Total length 8–19 mm. Body wall thin, stiff, packed with ossicles. Tube feet restricted to radii, in 5 more or less double rows. One or 2 feet may be present in mid-dorsal interradius. Tube feet apparently only partly retractile. Tentacles 10, richly branched; ventral pair of tentacles smaller than others. Body and tube feet light orange to white in alcohol; tentacles light yellow.

Calcareous ring simple (Fig. 1D) with undulating posterior margin. Retractor muscles attach to radial muscles at about middle of body. Polian vesicle single. Respiratory trees well developed, extending to anterior of body cavity. Gonad a tuft of several caeca at about mid-body. In females caeca contain yolky eggs approximately 700 μm in diameter.

Ossicles in body wall knobbed plates and rudimentary cups. Plates (Fig. 1E) highly variable in shape and size, averaging 72 μm in length (range 120–300 μm ; standard deviation 14.64). Basic plate apparently 4-holed, but very few 4-holed examples seen. Cups (Fig. 1C) minute, averaging 41 μm in length (range 38–44 μm ; standard deviation 1.81), comprising central rod with terminal bifurcation (primary cross pattern), each furca carrying small knobs.

Tube feet with rudimentary end plates; walls of feet contain numerous elongate smooth or knobbed plates (Fig. 1B) which are highly variable in shape and size. Tentacles packed with curved perforated rods and small perforated plates (Fig. 1A); plates and rods usually smooth, or with few small knobs.

Remarks: Rowe (1970) erected the new genera *Aslia* and *Pawsonia* to accommodate some species which had originally been referred by Panning (1949) to *Ludwigia* (see Pawson, 1963). Rowe concluded also that some of the species which had originally been assembled under the preoccupied genus-name *Ludwigia* should provisionally be referred to *Ocnus*. These species included *planci* (Brandt), *lactea* (Forbes), *glacialis* (Ljungman), *hedingi* (Panning) and some others, and it is with this group of species, and therefore with the genus *Ocnus*, that *O. diomedea* appears to have its strongest relationships. In possessing rudimentary cups, *O. diomedea* is immediately distinguished from most *Ocnus*-species. *O. hedingi* (Panning), *O. syracusanus* (Grube) and *O. glacialis* (Ljungman) have similarly reduced cups, but in these species the knobbed plates in the body wall are either more complex or are of a different type, and the ossicles in the tube feet are distinctly different.

LITERATURE CITED

- CLARK, H. L. 1933. A handbook of the littoral echinoderms of Porto Rico and the other West Indian islands. *Sci. Surv. Porto Rico Virgin Islands* N. Y. 16(1):1–60.
- HEDING, S. G. 1928. Synaptidae. *Vidensk. Medd. dansk naturh. Foren. Kbh.* 85:105–323.

- . 1935. Holothurioidea. Part I. Apoda, Molpadioidea, Gephyrothurioidea. Danish Ingolf-Exped. 4(9):1-84.
- PANNING, A. 1949. Versuch einer Neuordnung der Familie Cucumariidae (Holothurioidea, Dendrochirota). Zool. Jb. 78(4):404-470.
- PAWSON, D. L. 1963. The holothurian fauna of Cook Strait, New Zealand. Zool. Publ. Victoria Univ. Coll. 36:1-38.
- ROWE, F. W. E. 1970. A note on the British species of cucumarians, involving the erection of two new nominal genera. Jour. Mar. Biol. Ass. U.K. 50:683-687.